

What is claimed is:

1. A multi-selection coherent detection method, comprising the steps of:

A. dividing the length L used for the signal detection into N_{multicoh} segments, performing the coherent accumulating within each segment, and obtaining total N_{multicoh} coherent results denoted as X_i ($i=0 \dots N_{\text{noncoh}}-1$);

B. performing various possible phase adjustments on those N_{multicoh} coherent results (the number of the possible phase adjustments being denoted as P), and denoting the adjustment results as $Y_{i,j}$ ($i=0 \dots N_{\text{multicoh}}-1, j=0 \dots P-1$);

C. selecting a value of the adjustment result from P adjustment results corresponding to each coherent result, and the largest number of the combinations being $C=P^{N_{\text{multicoh}}}$;

D. coherently accumulating N_{multicoh} adjustment results in each combination and obtaining $C=P^{N_{\text{multicoh}}}$ coherent results denoted as Z_t ($t=0 \dots C-1$);

E. among $C=P^{N_{\text{multicoh}}}$ coherent results, selecting the optimum ones as the detection results.

2. A multi-selection coherent detection method according to Claim 1, wherein, the segments in step a are equal spaced or unequal spaced.

3. A multi-selection coherent detection method according to Claim 1, wherein, in the phase adjustment of step b, when the number of the phase adjustments is P, performing the phase rotation of $\phi = \phi_0 + k * 2 \pi / P$, ($k=0 \dots P-1$), on the signals respectively, wherein, ϕ_0 may be any value.

4. A multi-selection coherent detection method according to Claim 1, wherein, in the said step a, obtaining one X_i for each segment, and there being total N_{multicoh} coherent results; according to step b further, performing P phase adjustments for each coherent result, and obtaining total $N_{\text{multicoh}} * P$ adjustment coherent results.

5. A multi-selection coherent detection method according to Claim 4, wherein, selecting one adjustment coherent result from P adjustment coherent results corresponding to each coherent result, and carrying out the coherent overlapping on total N_{multicoh} adjustment coherent results, and obtaining a final coherent result Z_t obtained; in this way, there being total $C=P^{N_{\text{multicoh}}}$ possible selection methods, then obtaining $C=P^{N_{\text{multicoh}}}$ final coherent results Z_t further.

6. A multi-selection coherent detection method according to Claim 1, wherein, in step e, the method of the largest mode is used as a criterion for selecting the optimum ones.

7. A multi-selection coherent detection method according to Claim 5, wherein, the number of the largest coherent results is $C=P^{N_{multcoh}}$, however it does not mean that $C=P^{N_{multcoh}}$ coherent results must be obtained in the practical application; the number of the coherent results that less than $C=P^{N_{multcoh}}$ may be used according to the situations to reduce the number of the coherent results required.

8. A multi-selection coherent detection device, wherein, the said detection device comprises: a matched filter unit; two or more branch units; and a branch selection unit. The input signal is input to the matched filter unit for carrying out matched and filtering; the output of the matched filter unit is sent to each branch unit respectively; the phase adjustment and the coherent accumulation of the signal is performed in each branch unit, and then sent to the branch selection unit; the branch output of selecting the largest mode is performed by the branch selection unit.

9. A multi-selection coherent detection device according to Claim 8, wherein, each said branch unit further comprises: a multiplier, for carrying out the phase adjustment; an adder, for carrying out the coherent accumulation; a holder, for holding the data; a delay unit, for delaying the data; the output of the matched filter is sent to the branch selection unit via the multiplier, and the adder in turn; meanwhile, the adjustment series is sent to the multiplier via the holder, and the output of the adder is feedback to its input via the delay unit.

10. A multi-selection coherent detection device according to Claim 9, wherein, both the holding time of the holder and the delay time of the delay unit are for a time period of 1024 chips.